## AREA OF FOCUS #9

# Gallbladder Disease

Gallbladder disease (GBD), defined as the presence of gallstones or history of gallbladder surgery (cholecystectomies), affects 17 percent of women and 8 percent of men in the United States.

More than 700,000 cholecystectomies are performed yearly, making GBD among the most expensive of surgically treated diseases. The major indications for surgery are the development of acute attacks of pain (biliary colic) and obstruction of the bile ducts by gallstones.

Established risk factors for GBD include obesity, rapid weight loss, prolonged fasting, sedentary activity, diabetes, smoking, hypertriglyceridemia, pregnancy, and use of estrogens.

Gallstones are extremely common among American Indians, affecting over 50 percent of both men and women in some tribes. Gallstones are also particularly common among Mexican Americans.

Gallstones are the only major identified risk factor for gallbladder cancer. Although this cancer is relatively uncommon in the United States, it is a leading cause of cancer death among American Indians, particularly women.

### **Research Goal 1**

To prevent the development of gallstones among American Indians and Mexican Americans

## **Current Activities**

NIDDK supports ongoing studies on the pathogenesis and prevention of gallstones. These include examining the role of defective muscle contraction in gallbladder stasis and its contribution to gallstone formation and growth and to the recurrence of gallstones; determining the mechanisms involved in chloride channel regulation in gallbladder epithelium in normal and disease states; developing mouse genetic models for gallstone susceptibility; examining the incidence of and the predictive factors for biliary sludge and gallstone formation during and after pregnancy; and defining the genetics of gallstone occurrence in a well-characterized cohort of Mexican-American families.

## **Potential New Initiative**

Determine the underlying genetic, physiological, and metabolic mechanisms that determine the racial/ethnic and gender differences in susceptibility to and outcomes of gallstones.



#### **Expected Outcome**

Definition of the host and environmental factors that determine the high prevalence of gallstones in Mexican Americans and American Indians.

#### **Action Plan**

Mechanisms of funding will include a RFA/PA for R01s and R21s.

## **Research Goal 2**

To reduce the incidence of complications of gallbladder disease in minority populations

#### Current Activities None.

### **Potential New Initiatives**

 Stimulate research aimed at identifying risk factors, surrogate and predictive markers, and prophylactic and therapeutic interventions to prevent the complications of gallstones such as bile duct obstruction, acute cholecystitis, and pancreatitis.

#### **Expected Outcome**

Determine those factors that contribute to the complications of gallstones and develop the means to prevent or intervene.

#### **Action Plan**

Mechanisms for funding include a PA for R01s, R03s, and R21s.

2. Identify genetic and environmental risk factors for the high incidence of gallbladder cancer in Mexican Americans and American Indians, using new technologies (genomics, proteomics, microarrays).

#### **Expected Outcome**

Better understanding of the basis for the increased risk of gallbladder cancer in minority populations.

#### **Action Plan**

Mechanisms for funding include a PA/RFA for R01s and R21s.

## **Public Information and Outreach Goal**

To increase awareness of gallstone disease prevention and treatment in Hispanic Americans

## **Current Activities**

Obesity is a risk factor for gallstone disease, particularly for obese and overweight women. Recent investigations of ethnic trends of gallstone disease indicate that Mexican American women have a high prevalence of the disease. NIDDK has produced a fact sheet on the topic of gallstones, which is distributed through its National Digestive Diseases Information Clearinghouse.

## **Potential New Initiative**

To create culturally appropriate materials for Hispanic-American audiences related to obesity and gallstones, the Weight-control Information Network will develop materials in Spanish that address the issue of gallstones, obesity, dieting, and physical activity.

#### **Action Plan**

Create and promote availability of materials through culturally appropriate communication channels.